

**The Economic Benefits of
Fisheries, Wildlife and Boating Resources
in the
State of Louisiana**

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Executive Summary

The fish, wildlife and boating resources of Louisiana are substantial. Hundreds of thousands depend on the resources for recreation, work and as a source of nourishment. Actively managed by the Louisiana Department of Wildlife and Fisheries, these resources not only contribute to the standard of living and economic health of state residents, they also contribute significantly through state tax revenues. The major activities based on Louisiana's fish, wildlife and boating resources, and examples of their economic contributions in 1996, are summarized in the following table.

| Summary Table: Economic Impacts of Fisheries, Wildlife and Boating Resources, Louisiana, 1996. | | | | |
|---|--------------------------------------|---|--------------------------|--|
| | Retail Sales (million \$) | Total Economic Effect (million \$) | Jobs (Number) | State Sales Tax & Inc Tax Revenues (million \$) |
| Recreational Hunting | 389.2 | 758.5 | 9,800 | 20.8 |
| Recreational Fishing | 790.0 | 1,600.0 | 18,400 | 38.5 |
| Non-Consumptive Fish & Wildlife Recreation | 253.3 | 512.3 | 6,800 | 21.0 |
| Recreational Boating | 1,500.0 | 3,000.0 | 26,600 | 72.6 |
| Commercial Fishing: * | 2,100.0 | 2,800.0 | 31,400 | 107.0 |
| Alligator Harvests | 23.0 | 40.2 | 430 | 1.2 |
| Reptile & Amphibian Collection | 1.3 | 2.5 | 20 | 0.1 |
| Fur Harvest | 1.4 | 2.5 | 36 | 0.1 |
| TOTAL | 5,047.0 | 8,700.0 | 93,500 | 261.0 |

* Retail sales in Commercial Fishing include dockside sales of \$315.8 million and sales at the processing, wholesale, retail and restaurant levels.

INTRODUCTION

This reports estimates the economic contributions of fish and wildlife harvests and recreation in the state of Louisiana in 1996. Included in this report are specific economic estimates for the following activities:

- Hunting
- Recreational fishing
- Non-consumptive fish and wildlife recreation (bird watching, photography, etc.)
- Recreational boating
- Commercial fishing
- Alligator harvests
- Reptile and amphibian collection, and
- Fur harvesting

For each of the above activities, estimates are provided for the total revenues or retail sales generated in 1996, and the resulting jobs, income, sales and income tax revenues and total economic (multiplier) effect that are supported by each activity within the Louisiana economy.

For recreational boating, commercial fishing, reptile and amphibian collection and fur harvests, scientific studies of their economic contributions were not available. The resources available for this project would not permit the lengthy and costly examinations required to produce precise estimates. To overcome this limitation, information from similar studies in other states were transposed to Louisiana to estimate the economic impacts in state. While this may not be statistically perfect methodology, the results do provide Louisiana a good approximation of the actual benefits produced from its fish, wildlife and boating resources.

ECONOMIC CONCEPTS AND DEFINITIONS

The economic benefits of outdoor recreation and resource harvests can be estimated by two types of economic measures: economic impacts and economic values. An economic impact addresses the business and financial activity resulting from users' expenditures. Economic value measures the intrinsic value received by the user in the course of their outdoor activity. Technically, economic value measures the difference between what an individual would be willing to pay and what they actually pay for a commodity or activity. This concept is also known as "consumer surplus". Only **economic impacts** are addressed in this report.

There are three types of economic impacts: direct, indirect and induced. A direct impact is created by the initial purchase made by the consumer. For example, when a person buys a shotgun for \$395 there is a direct impact to the retailer of \$395. Indirect impacts are secondary effects generated from a direct impact. For example, the retail store must purchase a replacement shotgun; the gun manufacturer must purchase additional metals, wood, etc. for production; metal refiners must buy inputs, and so on. Therefore, the original expenditure of \$395 benefits a host of other industries. An induced impact results from the wages and salaries paid by the directly and indirectly impacted industries. The employees of these industries spend their income on various goods and services. These expenditures are known as induced impacts which, in turn, create a continual cycle of additional indirect and induced effects.

The sum of the direct, indirect and induced impacts equals the total economic impact. As the original retail purchase goes through round after round of indirect and induced effects, the economic impact of the original purchase is multiplied, benefiting many industries and individuals. Likewise, the reverse is true. If a particular item or industry is removed from the economy, the economic loss is greater than the original lost retail sale. Once the original retail purchase is made, each successive round of spending is smaller than the previous round. When the economic benefits are no longer measurable, the economic examination ends.

Definitions:

Retail Sales: For hunting, recreational fishing, boating and non-consumptive recreationists, retail sales equals the dollars spent by the participants to partake in their recreation including meals, lodging, travel and equipment.

For commercial activities (commercial fishing, alligator harvests, fur, etc.), retail sales equals the income the harvesters receive for their catch. Retail sales is the same as dock side or ex-vessel price.

Total Economic, or multiplier, Effect: is the total multiplier (or ripple) effect in the economy created by successive rounds of retailer, manufacturer and others' expenditures. These successive rounds of spending generate additional economic benefits with each round becoming smaller and smaller until they cannot be measured any longer.

Jobs: the total jobs supported by the many rounds of spending described above.

Income: the total wages and salaries paid to employees by all of the industries enhanced by the total rounds of spending.

Tax Revenues: the total sales and income tax revenues paid to government as a result of the retail sales, wages and salaries described above.

Non-Consumptive Recreation: Fish and wildlife viewing or watching, photography and feeding.

METHODS

The discussion of methodologies used in this report is divided into several sections. The first presents the methodologies used to estimate the economic contributions of sport fishing, hunting and non-consumptive recreation. The economic estimates for these three activities were generated using the same data sources and analytical procedures. After the discussion on sport fishing, hunting, and non-consumptive activities, the methodologies used to estimate the contributions of the other activities will be presented. The results are presented in the next chapter.

Recreational Fishing, Hunting and Non-Consumptive Fish and Wildlife Recreation:

The sport fishing estimates were obtained from The 1991 Economic Impact of Sport Fishing in Louisiana produced by the American Sportfishing Association (Fedler and Nickum). No adjustments were needed to these numbers. The numbers from this report were produced using the methodologies described below.

The hunting estimates were obtained from The Economic Benefits of Hunting in the United States in 1991 produced by Southwick Associates for the International Association of Fish and Wildlife Agencies. Adjustments were not required to this study. The numbers from this report were also produced using the methodologies described below.

The economic contributions of non-consumptive fish and wildlife recreation (bird watching, wildlife observation and photography, and feeding) were produced as part of this report. The methodologies used were identical to the methodologies discussed next.

The methods used to estimate the economic impacts of these activities are separated into six stages:

- 1) tabulate recreationists' expenditures;
- 2) calculate the expenditures attributable to Louisiana;
- 3) disaggregate the expenditures into retail, wholesale, and manufacturer portions;
- 4) generate economic impact estimates by applying the economic model to the adjusted expenditures;
- 5) calculate state sales and income tax revenues;
- 6) adjust 1991 recreational estimates to reflect 1996 participation levels and adjust for inflation.

Expenditures

Outdoor recreation expenditures were obtained from the U. S. Fish and Wildlife Service's 1991 National Survey of Fishing, Hunting, and Wildlife-Associated Recreation (Survey). The Survey contains data on trip-related expenditures (such as food, lodging, fuel) where the primary purpose of the purchase was for hunting, fishing or wildlife-related activities (for example, wildlife photography, bird watching, etc.). The Survey also contains data on equipment expenditures (such as guns, decoys, ammunition) made by sportsmen for hunting, equipment expenditures (such as rods, reels, tackle boxes) made for fishing, and contains data on equipment expenditures (such as boats, camping equipment) made by sportsmen that can be used for both hunting and fishing. In addition, the Survey contains data (in a separate sampling) on equipment expenditures (such as guide books, day packs) made by recreationists for non-consumptive wildlife-related activities. Both resident and non-resident (tourist) expenditures are included in the hunting, recreational fishing and non-consumptive analyses.

For the purposes of this project, data were first downloaded from the survey database for the U.S. as a whole for all angling, hunting and wildlife-related expenditures. Expenditures were separated into individual state files for each of the three activities. All expenditures in this file were direct expenditures. Hunting expenditures were further subdivided into big game, small game (which also includes "other" hunted species as per the Survey) and migratory bird hunting files. Also downloaded were the total days of hunting, fishing and wildlife-related activities for each state along with specific estimates for big game, small game and migratory bird hunting days per state. Simultaneously, data were downloaded on each respondent's total activity conducted on public lands (the public lands data will be described further in the next section). After the data were downloaded, each state's direct expenditures were divided by the total days of activity to derive the average direct expenditure per day of hunting (by big game, small game and migratory bird hunting expenditures per day), fishing and non-consumptive recreation.

For wildlife-related use expenditures, certain equipment expenditures were not allocated as they typically are used for wildlife-related activities around the home and not used for activities away from home (such as National Forest and other public lands). These include purchases of bird houses, bird feeders and commercial bird seed.

Margins (Indirect Expenditures)

Retail sales (recreationist expenditures) were separated into manufacturing, wholesale and retail sub-categories because economic impact analyses treats each segment as separate industries. The amount of each retail sale attributed to each segment is known as a margin. A margin is the percentage, or mark-up, of a sale attributable to either the retail, wholesale or manufacturing sector. For example, 70 percent of the final retail dollar value of a shotgun sale may be attributed to the manufacturer, 5 percent to the wholesaler

and 25 percent to the retailer. This means that the manufacturing industry has earned 70 percent of the final retail price, the wholesaler accrued 5 percent of the sale, and the retailer received 25 percent. Since there are no wholesale or manufacturing activities in the service sector, services are not subjected to the above process.

Data used to calculate trade margins are from the Census of Retail Trade: Measures of Values Produced and the Census of Wholesale Trade: Measures of Values Produced. These two Department of Commerce documents contain national sales figures for most retail and wholesale industry sectors as well as gross margins. A gross margin is the revenue remaining after the cost of the goods sold is subtracted. To derive margins, each wholesale and retail industry's gross margin was divided by its total sales. This produces the typical price mark-up for that industry. Next, two formulas are applied to estimate the value added (price mark-up) for each sector:

$R/(1+R)$ = retail margin, where R = retail mark-up

$W/\{(1+W)(1+R)\}$ = wholesale margin, where W = wholesale mark-up.

These formulas estimate the percentage of a product's final selling price that accrue to each sector. The manufacturing margin is derived by summing the retail and wholesale margins and subtracting the total from 100 percent.

Economic Modeling

To estimate the economic impacts the data were analyzed with an economic model: the RIMS-II Regional Input-Output model. The RIMS-II model was developed by the U.S. Dept. of Commerce, Bureau of Economic Analysis for primary use by the Federal government. Input-output models describe how sales in one industry impact other industries. For example, once a sportsman makes a purchase, the retailer buys more merchandise from wholesalers, who buy more from manufacturers, who, in turn, purchase new inputs and supplies. In addition, the wages and salaries paid by these businesses stimulate more benefits. Simply, the first purchase creates numerous rounds of purchasing. Input-output analysis tracks how the various rounds of purchasing benefits other industries and generates economic benefits.

The relationships between industries are explained through multipliers. For example, an income multiplier of .09 for industry X would indicate that for every dollar received by the industry under study, nine cents would be paid to the employees of industry X . The RIMS-II model provides multipliers for all major industries. The multipliers include direct, indirect and induced effects. The RIMS-II model includes output, earnings and employment multipliers. The output multiplier measures the total economic effects created by the original retail sale. The earnings multiplier measures the total salaries and wages generated by the original retail sale. The employment multiplier estimates the number of full time equivalent jobs supported by the original retail sale.

To apply the RIMS-II model, recreationist expenditures are each matched to the appropriate output, earnings and employment multipliers. For example, dollars attributed to gasoline refining are multiplied separately by the earnings, output and employment multipliers specific to gasoline refinement. The resulting estimates describe the salaries and wages, total economic effects, and jobs supported by the refining industry as a result of fuel purchases made by recreationists. This same process is repeated for all reported expenditures. After all expenditures and multipliers have been applied together, the retail, wholesale and manufacturing results for each category are summed together.

Tax Revenues

State sales tax estimates are based on state sales and fuel tax rates. Sales tax revenues are calculated by multiplying all retail purchases by the 1991 state tax rate (excluding local and city taxes). Due to the widely differing fees for wholesaler/manufacturer and use taxes, these were not included in this study. Since the economic numbers (including tax revenues) from the Survey and the hunting and sport fishing study reported 1991 data only, the tax revenues were inflated to 1996 levels using the Consumer Price Index (CPI-U).

State income tax revenues were determined by dividing the total earnings by total jobs to receive the average income per job. Next, a standard deduction was subtracted (based on federal deduction rates) and the remaining amount was multiplied by the respective 1996 state income tax rate. The results were then multiplied by the total jobs to derive the final income tax estimate.

Adjusting 1991 recreation-based results to 1996

The data from the Survey were for 1991. We made adjustments to convert the results to estimate economic impacts for 1996. The first adjustment entailed adjusting the 1991 numbers to reflect 1996 participation levels. This was accomplished by calculating the average economic impact per hunting and fishing license sold in 1991 (approximately 552,000 hunting and 855,000 fishing licenses were sold in Louisiana during 1991) and then multiplying these averages by the total number of hunting and fishing licenses sold in 1996 (approximately 579,000 hunting and 944,000 fishing licenses were sold in Louisiana during 1996). Since licenses are not sold for non-consumptive recreation, 1991 numbers were adjusted to 1996 levels by using the average increase in fishing and hunting license sales.

The second adjustment entailed multiplying the 1991 monetary numbers by the growth in prices (inflation) experienced from 1991 to 1996. The inflation rate was calculated by dividing the December, 1996 Consumer Price Index (CPI) of 158.6 by the

December, 1991 CPI of 137.9. For non-consumptive recreation, the only adjustment was for inflation using the CPI. Jobs estimates were not adjusted for inflation as the average wage per job typically rises with inflation. Therefore, the number of jobs remains the same as prices increase. Job growth is created by more people participating in hunting or fishing, or if more money is spent per sportsmen above the inflation rate.

Recreational Boating:

A study of the economic impacts of Louisiana boating could not be located nor identified. Therefore, the contributions of recreational boating in Louisiana were estimated based on a 1994 examination of boating economics in the state of Maryland (*Recreational Boating in Maryland: An Economic Impact Study*). This study was the latest available for any state and only one of three state-specific studies that could be identified (the others included a ten year old study of Texas boaters and one currently being conducted in California but not yet available). While not a perfect match, the Maryland study compares favorably to Louisiana as much of both states boating activity is marine, and a significant portion occurs in protected marine waters with the rest accessing either deep water or inland lakes and rivers.

Another comparison exists between recreational boating and sportfishing in Louisiana and Maryland. According to the National Marine Manufacturers Association and the American Sportfishing Association, up to 80 percent of boaters also fish. Per boater registration records maintained by the Louisiana Department of Wildlife and Fisheries, 282,250 boats were registered for recreational use in Louisiana in 1996. The Maryland Boating Administration reported 190,436 registered boats. Therefore, the Maryland boating population is 68 percent the size of Louisiana's. Based on the U.S. Fish and Wildlife Service's National Survey of Fishing, Hunting and Non-consumptive Recreation, the number of anglers in Maryland is 61 percent the size of Louisiana's angler population. Therefore, to estimate the economic impacts of recreational boating in Louisiana, Maryland data is considered an adequate comparison.

Economic impacts of recreational boating were estimated by multiplying the average annual expenditures per registered boats in Maryland (\$5,311) by the number of registered boats in Louisiana. This yields an estimate of \$1.49 billion in average boating expenditures in 1996. This expenditure estimate includes all trip-related expenditures (food, fuel, lodging, etc.), boat-related expenses (equipment, marina expenses, repairs, etc.) and the cost of purchasing new and used boats. Based on the ratios of expenditures to impacts within the Maryland study, the estimated economic benefits of recreational boating are listed below for the state of Louisiana. Tax revenues were estimated by matching the ratio derived from sportfishing expenditures to tax revenues (data source: American Sportfishing Association) with estimated boating expenditures. One note must be made: the boating expenditures made as part of a boater's fishing activities are

also represented in the sport fishing impacts presented in this report. While this is a double counting of the same expenditures and economic impacts, these expenditures are not removed. The first reason why they are not removed is that the exact boating-fishing expenditures cannot be identified without incurring significant time and financial demands that are both beyond the capabilities of this study. Second, the boating-fishing expenditures are left in as a proxy to non-boater expenditures and impacts that are not a part of this analysis as they were not included in the Maryland report (which was the foundation of these estimates).

Commercial Fisheries:

Data specifically focused on the economic contributions of Louisiana's commercial fisheries could not be located. Therefore, the economic contributions of commercial fisheries in Louisiana were calculated by the following steps. First, the total dollar value (ex-vessel) of Louisiana's commercial harvest was analyzed using multiplier ratios derived from the Economic Impact of the Commercial Fishing Industry in the Gulf of Mexico and South Atlantic Regions (1984) by Kearney/Centaur for the Gulf and South Atlantic Fisheries Development Foundation, Inc. The total value of the Louisiana commercial harvest as a whole was calculated using these data. Data reporting the total dockside value of Louisiana's commercial harvest was obtained from the National Marine Fisheries Service, who obtained the data originally from the Louisiana Department of Wildlife and Fisheries. Based on the percentages of the total harvest attributable to each species (reported by NMFS and LDWF), we were able to estimate the total economic impacts for marine finfish, freshwater harvests (including frogs, gar, crawfish and turtles (food-only)) and marine shellfish harvests (shrimp, crabs, etc.). Data for 1995 were used in the report as 1996 harvest value data were not available at the time this report was produced.

The economic multipliers from the Kearney report were obtained from a table (exhibit 6-14, p. 187-9 of the Kearney study) that analyzed the economic contributions of commercial landings in the gulf and south Atlantic regions as they moved through the processing and wholesale sectors to the final retail and restaurant consumers. This table presented how much extra monetary value was added to the fishery products as they moved through each sector (processing, wholesale, etc.), and the total jobs and economic activity supported by each sector. By comparing the "value added" produced at each sector to the initial ex-vessel value, ratios were obtained that were then used to estimate the value-added, jobs supported and total economic activity from 1995 Louisiana commercial fishery landings.

Adjustments had to be made. First, the ratios calculated and used as described in the paragraph above estimate the economic impacts of Louisiana commercials on the national economy. No economic models could be located that emulated the state

economy. The scope of this project, however, is to estimate economic contributions at the *state* level only. The difference between state and national analyses is that national economic analyses typically have a larger impact for every dollar spent (or received) by a specific industry. This is due to the fact that as an industry spends its revenues (and therefore creates economic impacts), the money spent leaves the state economy faster than it leaves the national economy. For example, if a Louisiana shrimp processor sells his catch to a Texas wholesaler, the economic effects on the Louisiana economy end at this point while the effects continue for the national economy. Not until the shrimp is either consumed or exported does the impact end on the national economy. Recognizing this, the commercial fishery impacts estimated using multipliers from the Kearney report had to be reduced.

Based on two studies that presented national and state specific impacts, comparisons were made between the impacts generated per dollar of sales at the Louisiana and national levels. These two studies are the reports presented in the hunting and the sportfishing sections of this report. From these studies, comparisons could be made between multipliers for state economies versus national economies:

| | <u>Total Economic Activity</u> | <u>Income</u> | <u>Jobs</u> |
|-----------------------|--------------------------------|---------------|-------------|
| <i>Sport fishing:</i> | 69% | 66% | 77% |
| <i>Hunting:</i> | <u>69%</u> | <u>74%</u> | <u>88%</u> |
| AVERAGE: | 69% | 70% | 82% |

The average difference between state and national multipliers were then used to adjust the economic contributions of Louisiana's commercial fisheries to reflect state-level impacts versus national-level impacts.

Since the objective of this report is to estimate the 1996 contributions of fish, wildlife and outdoor recreation to the Louisiana economy, one final adjustment was made. The commercial fishery estimates above were based on the 1995 commercial fishery harvest. Data on the 1996 harvest were not available when this report was assembled. Therefore, without any information on the actual 1996 harvest, adjustments were made by inflating the 1995 harvest value by the consumer price index. From December 1995 to December 1996, consumer prices rose approximately three percent. The final economic estimates for commercial harvests were increased accordingly.

The following calculation was used to estimate the state sales and income taxes generated by commercial fishing. State sales and income tax revenues were estimated by first averaging the ratios of retail sales to tax revenues for both sportfishing and hunting (the only two wildlife based resource uses for which Louisiana sales and income tax revenue estimates are available), and then matching the average ratio to commercial fishery retail sales.

Alligator Harvests:

The economic contributions of alligator harvests were based on Louisiana Alligator Farming: 1991 Economic Impact (Brannen, et al.). This thorough examination calculated the economic contribution of both wild and farm harvests including meat and hide sales. From this report, ratios were developed by comparing sales (industry revenues) to total output (multiplier effect), income and jobs. These ratios were matched with actual revenues from all hide and meat sales from the 1995/96 season as reported by the LDWF. The results were the total estimated economic contributions of the Louisiana alligator trade. State sales and income tax revenues were estimated by first averaging the ratios of retail sales to tax revenues for both sportfishing and hunting (the only two wildlife based resource uses for which Louisiana tax revenue estimates are available), and matching the average ratio to alligator retail sales.

Reptile and Amphibian Collection:

The Louisiana economy also benefits from the collection of reptiles and amphibians for human consumption, laboratory research and the pet trade. However, only exports out-of-state are regulated and therefore recorded. In 1995, the latest year in which export records were available, the following values for exported reptiles and amphibians were reported:

| | |
|---------------|--------------------|
| Salamanders: | \$ 6,134 |
| Frogs: | \$349,136 |
| Turtles: | \$171,515 |
| Lizards: | \$602,182 |
| Snakes: | \$ 97,614 |
| <i>TOTAL:</i> | <i>\$1,226,581</i> |

The economic contributions of these shipments were estimated by using economic multipliers from the commercial fishing portion of this report as both activities represent the harvest of a wild resource for commercial sale. Recognizing that commercial harvesting employs a processing sector and most reptile amphibian exports are shipped whole and/or live, better multipliers could not be located. Generating new multipliers was beyond the scope of this study. Ratios were developed by comparing sales (industry revenues) to total output (multiplier effect), income and jobs. These ratios were matched with 1995 reptile and amphibian export values as reported by the LDWF. The results were the total estimated economic contributions of the Louisiana reptile and amphibian trade. State sales and income tax revenues were estimated by first averaging the ratios of retail sales to tax revenues for both sportfishing and hunting (the only two wildlife based resource uses for which Louisiana tax revenue estimates are available), and matching the average ratio to reptile and amphibian retail sales. To

reflect 1996 levels, the 1995 estimates were inflated to 1996 levels using the Consumer Price Index (CPI).

Fur Harvests:

The value of the annual state fur harvest is recorded by the LDWF. To estimate the economic impacts, multipliers were borrowed from a national economic study of trapping conducted in 1993 titled An Economic Profile of the U.S. Fur Industry (Southwick et al.). Ratios were developed by comparing sales (industry revenues) to total output (multiplier effect), income and jobs in the Southwick fur industry study. These ratios were then matched with 1995/96 fur harvest value data as reported by the LDWF. The results were the total estimated economic contributions of the Louisiana fur trade. State sales and income tax revenues were estimated by first averaging the ratios of retail sales to tax revenues for both sportfishing and hunting (the only two wildlife based resource uses for which Louisiana tax revenue estimates are available), and matching the average ratio to fur retail sales (which is the same as the value of the fur harvest).

The Economic Contributions of Louisiana's Fisheries, Wildlife and Boating Resources:

The economic contributions of all fishery, wildlife and boating related impacts cannot be accurately estimated by simply summing the results for each separate fishery, hunting, boating and other analyses. Since expenditures from one activity may directly or indirectly benefit another activity included in this analysis, such as boats purchased by duck hunters, simply summing the results of each separate analysis may underestimate the actual economic contributions of all activities together. However, without detailed data on how the retail sales of each analysis are spent across all industries in Louisiana and other information, the results of each analysis must be summed. *Please note that the sum of the economic contributions is a minimum estimate and most likely underestimates the true impact of all fish, wildlife and boating activities examined in this report.*

RESULTS

The 1996 economic contributions of Louisiana's fisheries, wildlife and boating resources to the state economy are presented below. The minimum contributions of all activities together are presented last.

Hunting:

| | |
|----------------------------|----------------|
| Expenditures: | \$ 389,200,000 |
| Total Economic Effect: | \$ 758,500,000 |
| Income: | \$ 206,400,000 |
| Jobs: | 9,800 |
| State sales tax revenues: | \$ 16,600,000 |
| State income tax revenues: | \$ 4,200,000 |

Recreational Fishing:

Marine:

| | |
|----------------------------|----------------|
| Expenditures: | \$ 450,300,000 |
| Total Economic Effect: | \$ 944,000,000 |
| Income: | \$ 247,505,000 |
| Jobs: | 10,900 |
| State sales tax revenues: | \$ 18,644,000 |
| State income tax revenues: | \$ 4,071,000 |

Freshwater:

| | |
|----------------------------|----------------|
| Expenditures: | \$ 339,700,000 |
| Total Economic Effect: | \$ 656,000,000 |
| Income: | \$ 171,995,000 |
| Jobs: | 7,500 |
| State sales tax revenues: | \$ 12,956,000 |
| State income tax revenues: | \$ 2,829,000 |

Total Recreational Fishing:

| | |
|---------------------------|----------------|
| Expenditures: | \$ 790,000,000 |
| Total Economic Effect: | \$ 1.6 billion |
| Income: | \$ 419,500,000 |
| Jobs: | 18,400 |
| State sales tax revenues: | \$ 31,600,000 |

| | |
|----------------------------|--------------|
| State income tax revenues: | \$ 6,900,000 |
|----------------------------|--------------|

Non-Consumptive Fish and Wildlife Recreation:

| | |
|----------------------------|----------------|
| Expenditures: | \$ 253,300,000 |
| Total Economic Effect: | \$ 512,300,000 |
| Income: | \$ 144,300,000 |
| Jobs: | 6,800 |
| State sales tax revenues: | \$ 17,900,000 |
| State income tax revenues: | \$ 3,100,000 |

Recreational Boating:

| | |
|--|---------------|
| Retail Sales: | \$1.5 billion |
| Total Economic Effect: | \$3.0 billion |
| Income (household wages, business profits) | \$846,000,000 |
| Jobs | 26,600 |
| State sales tax revenue: | \$59,600,000 |
| State income tax revenue: | \$13,000,000 |

Commercial Fisheries:

Marine Finfish (12% of total commercial harvest):

| | |
|---|---------------|
| Ex-vessel landings (dock side value): | \$ 38,800,000 |
| Retail sales: | \$256,500,000 |
| (sales generated at processing, wholesale, retail and restaurant levels) | |
| Total Economic Effect: | \$341,900,000 |
| Income: | \$ 55,300,000 |
| Jobs: | 3,856 |
| State sales tax revenues: | \$ 10,600,000 |
| State income tax revenues: | \$ 2,500,000 |

Menhaden (13% of total commercial harvest):

| | |
|---|---------------|
| Ex-vessel landings (dock side value): | \$ 41,100,000 |
| Retail sales: | \$272,100,000 |
| (sales generated at processing, wholesale, retail and restaurant levels) | |
| Total Economic Effect: | \$362,600,000 |
| Income: | \$ 58,600,000 |

| | |
|----------------------------|--------------|
| Jobs: | 4,090 |
| State sales tax revenues: | \$11,200,000 |
| State income tax revenues: | \$2,700,000 |

Shrimp and Shellfish (70% of total commercial harvest):

| | |
|---|---------------|
| Ex-vessel landings (dock side value): | \$221,100,000 |
| Retail sales: | \$1.5 billion |
| (sales generated at processing, wholesale, retail and restaurant levels) | |
| Total Economic Effect: | \$1.9 billion |
| Income: | \$315,200,000 |
| Jobs: | 22,000 |
| State sales tax revenues: | \$60,400,000 |
| State income tax revenues: | \$14,500,000 |

Freshwater Harvests (5% of total commercial harvest):

| | |
|---|---------------|
| Ex-vessel landings (dock side value): | \$14,800,000 |
| Retail sales: | \$97,900,000 |
| (sales generated at processing, wholesale, retail and restaurant levels) | |
| Total Economic Effect: | \$130,500,000 |
| Income: | \$21,100,000 |
| Jobs: | 1,500 |
| State sales tax revenues: | \$4,000,000 |
| State income tax revenues: | \$970,000 |

All Louisiana Commercial Harvests (Total):

| | |
|---|---------------|
| Ex-vessel landings (dock side value): | \$315,800,000 |
| Retail sales: | \$2.1 billion |
| (sales generated at processing, wholesale, retail and restaurant levels) | |
| Total Economic Effect: | \$2.8 billion |
| Income: | \$450,200,000 |
| Jobs: | 31,400 |
| State sales tax revenues: | \$86,300,000 |
| State income tax revenues: | \$20,700,000 |

Alligator Harvests:

| | |
|------------------------|--------------|
| Retail sales: | \$23,010,000 |
| Total Economic Effect: | \$40,190,000 |
| Income: | \$6,020,000 |

| | |
|----------------------------|-----------|
| Jobs: | 430 |
| State sales tax revenues: | \$950,300 |
| State income tax revenues: | \$227,800 |

Reptile and Amphibian Collection:

| | |
|----------------------------|-------------|
| Retail sales: | \$1,263,000 |
| Total Economic Effect: | \$2,501,000 |
| Income: | \$670,000 |
| Jobs: | 20 |
| State sales tax revenues: | \$52,200 |
| State income tax revenues: | \$12,500 |

Fur Harvests:

| | |
|----------------------------|-------------|
| Retail sales: | \$1,356,000 |
| Total Economic Effect: | \$2,493,000 |
| Income: | \$673,000 |
| Jobs: | 36 |
| State sales tax revenues: | \$57,800 |
| State income tax revenues: | \$13,400 |

Total Economic Activities of Fisheries, Wildlife and Boating Resources in Louisiana:

Please note that the sum of the economic contributions for all fish, wildlife and boating related activities is a minimum estimate and most likely underestimates the true impact of all fish, wildlife and boating activities examined in this report (due to the multiplier effects lost through simple summations). This summation is only presented to help the reader gain a better understanding of the overall benefits these activities provide to the state economy.

| | |
|----------------------------|-----------------|
| Retail sales: | \$5.047 billion |
| Total Economic Effect: | \$8.7 billion |
| Income: | \$2.074 billion |
| Jobs: | 93,500 |
| State sales tax revenues: | \$213,000,000 |
| State income tax revenues: | \$48,000,000 |

CONCLUSION

The fisheries, wildlife and boating resources of Louisiana provide the state economy with important sources of jobs, income, tax revenues and other benefits. These benefits are particularly important in rural or remote areas where other sources of income are limited. Outdoor sportsmen and recreationists spend millions which benefit many other industries. Consumers spends millions more purchasing food and other products harvested from Louisiana's waters. By supporting over \$5 billion in retail sales, 93,500 jobs, over \$2 billion in salaries and wages, and over \$260 million in state tax revenues, these activities are of great value not only to industry and local businesses, but to every resident and community in Louisiana. In addition to benefiting a variety of industries, outdoor recreation contributes hundreds of millions of dollars annually in state tax revenues.

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